APPENDIX A

Title 49, C. 1, Section 15(6), U. S. C.

"Whenever, after full hearing upon complaint or upon its own initiative, the Commission is of opinion that the divisions of joint rates, fares, or charges, applicable to the transportation of passengers or property, are or will be unjust, unreasonable, inequitable, or unduly preferential or prejudicial as between the carriers parties thereto (whether agreed upon by such carriers, or any of them, or otherwise established), the Commission shall by order prescribe the just, reasonable, and equitable divisions thereof to be received by the several carriers, and in cases where the joint rate, fare, or charge was established pursuant to a finding or order of the Commission and the divisions thereof are found by it to have been unjust, unreasonable, or inequitable, or unduly preferential or prejudicial, the Commission may also by order determine what (for the period subsequent to the filing of the complaint or petition or the making of the order of investigation) would have been the just, reasonable, and equitable divisions thereof to be received by the several carriers, and require adjustment to be made in accordance therewith. In so prescribing and determining the divisions of joint rates, fares and charges, the Commission shall give due consideration, among other things, to the efficiency with which the carriers concerned are operated, the amount of revenue required to pay their respective operating expenses, taxes, and a fair return on their railway property held for and used in the service of transportation, and the importance to the public of

the transportation services of such carriers and also whether any particular participating carrier is an originating, intermediate, or delivering line, and any other fact or circumstance which would ordinarily, without regard to the mileage haul, entitle one carrier to a greater or less proportion than another carrier of the joint rate, fare or charge."

Amendments to The Constitution of The United States of America

Article Five

"No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation."

APPENDIX B

Summary of Special Line-Haul Services Rendered Citrus Fruit Traffic by Individual Official Roads

1. Richmond, Fredericksburg & Potomac Railroad.

The fluctuations in the receipt of cars of citrus fruit and other perishables, and the "bunching" of the receipts at certain times of the day, because of the necessity of maintaining schedules established to meet market requirements, necessitates the operation of light engines both northbound and southbound at different times of the week (R. 1338-40). Trains carrying citrus fruit and other perishables are not given as much tonnage as trains of dead freight (R. 1338). The return empty movement of refrigerator cars on the R. F. & P. is 90 per cent of the loaded movement of such cars (R. 1339). Because of more difficult grade conditions on the R. F. & P. the same type of engine as is used by the Atlantic Coast Line could handle over the R. F. & P. only one-half of the tonnage it can handle on the Coast Line (R. 1339, 1342).

2. Pennsylvania Railroad.

Citrus fruit and other perishables are received by the Pennsylvania at Potomac Yard, Va., and are handled in arranged freight service trains to one of the following terminals: Enola (Harrisburg) Pa., Baltimore, Md., Edge Moor (Wilmington) Del., Philadelphia, Pa., or Greenville or Harsimus Cove (Jersey City), N. J. With few exceptions the New York market is the only market which will take perishables in solid train loads (R. 1350). During the peak season one of the Harsimus Cove trains

would run virtually solid cars of perishables a substantial portion of the time, but this does not apply to all the trains operated from Potomac Yard to Harsimus Cove which carry perishables on the same day. Taking the arranged freight service trains out of Potomac Yard destined to Baltimore, Enola, Edge Moor, Philadelphia, Greenville and Harsimus Cove, a check of the movement during the season of 1928-29, when the perishable movement was at its height, developed that only 13 per cent of such trains were solid perishable trains, and a similar check of the 1933-34 season's operations showed that only 5 per cent of such trains operated out of Potomac Yard were loaded solid with perishables (R. 1350, 1351).

As a result of the decision in *N. Y. & Norfolk R. R.* vs. *Peninsula Exchange,* 240 U. S. 34, the carriers have been held to a high degree of liability for delay in making market. Market hours are definitely fixed and failure to make market may result in heavy claims (R. 1351-52). Ordinarily arranged service trains that handle perishable freight are not hauled subject to full tonnage. It is necessary to leave with what is available at the time the train is scheduled to depart and to continue to destination terminal with the same load even though less than a full train load (R. 1352, 1353). This is illustrated by Witness Clark's Exhibit No. C-2 which discloses that while 82.1 per cent of the potential capacity of the locomotives employed by the Pennsylvania in moving trains carrying perishables north from Potomac Yard was used over the sector from Potomac Yard to Baltimore, the percentage of potential capacity realized north of Baltimore to Edge Moor was only 59.2 per cent and north of Edge

Moor only 56.5 per cent (R. 1396). During the 1928-29 season approximately 65 per cent of the arranged freight service trains of the Pennsylvania out of Potomac Yard were double-headed (R. 1538).

Witness Clark's Exhibit No. C-3 clearly portrays the greater tare weight transported per ton of citrus fruit than per ton of other high class merchandise moving in arranged freight train service between the same terminals. Thus the study discloses that considering the tare weight of loaded cars only, it was necessary to transport 1.76 tons of tare weight for every ton of lading in the trains carrying perishables, as against only 1.18 tons of tare weight per ton of lading in the trains which carried merchandise generally. The return empty movement of refrigerator cars on the Pennsylvania is 89 per cent of the loaded movement, while the average return empty movement on all cars is 58.3 per cent. If allowance is made on this basis for the perishable and non-perishable trains in Clark's Exhibit No. C-3, it would be found that for each ton of lading in the perishable train study, it would be necessary to transport 3.7 tons of tare weight, while for the non-perishable trains, the average would be 2.1 tons of tare weight per ton of high class merchandise. The same exhibit (Clark's Ex. No. C-3) also discloses that the perishable trains carried but 1,085 tons of lading per train as against an average of 1,533 tons in the fast merchandise trains (R. 1397). If comparison were made with a heavy loaded train of dead freight, the comparison would be even more striking.

The line service accorded citrus fruit and other perishables by the Pennsylvania from Cincinnati to

Chicago and to Columbus and Pittsburgh was described by Witness McSweeney. This service is also distinguished by faster schedules, lighter train loading, and a less use of potential engine capacity than in the case of all system traffic on the average (R. 1364, 1365, 1370).

Witness Clark testified that an analysis made by him of the loaded and empty movement shows a much more unbalanced loaded movement over the portions of the Pennsylvania's lines to include the Washington-New York line than on the Seaboard Air Line (R. 1538).

3. Baltimore & Ohio Railroad.

Witness Ward described the particular respects in which the line-haul service performed by the Baltimore & Ohio in respect of citrus fruit and other perishables from Potomac Yard to Baltimore and Philadelphia, and from Cincinnati to Dayton, Lima, and Toledo, Ohio, and other destinations in Central territory, exceeds the service given the average of all freight. B. & O. trains carrying perishables out of Potomac Yard are loaded 800 to 900 tons less than the locomotive ratings, and if departure from Potomac Yard is delayed for any reason, the tonnage is still further reduced. Out of Cincinnati perishable trains are restricted to either 3,100 or 4,100 tons, dependent upon time of departure, although the locomotives used have potential ratings of 6,300 tons (R. 1370-71). Were it not for perishables in the trains out of Potomac Yard, and the necessity of making schedules to meet market requirements, trains from Potomac Yard destined beyond Baltimore would pick up additional tonnage at the latter point

or consolidate with a train which originates at Baltimore (R. 1372).

1. New York, New Haven & Hartford Railroad.

Various features of the specialized service required to expedite the movement of citrus fruit traffic were explained by witness Fairfield as follows:

(a) *Inspection of Cars.* Employes in the mechanical force specialize in the inspection and treatment of car journal bearings to insure continuous and prompt movement to destinations or break-up yard. Special attention is given to repairing defective cars. On a train containing perishables leaving the gateway or leaving the various break-up yards eight to ten car inspectors are assigned thereto so that a thorough inspection is made in the quickest time possible. This is double the number necessary for non-perishable trains (R. 835).

(b) *Switching, Classification, Placement.* Special attention is also given to the switching of the traffic at the gateway, at intermediate points and at the final destination. Cars containing perishables are the first classified at all points, and at many points on the road the road crews instead of regular switching crews place the cars early in the morning. Placement of other traffic is made by yard crews when they report at 7 A.M. but the fruit and vegetable dealers demand and get placement before this time (R. 835, 837).

(c) *Cleaning Cars and Terminals.* The cleaning of cars which have handled perishables is an important item of expense at the chief destinations. At Harlem River, Boston, New Haven, and Providence the New Haven provides for cleaning of cars and terminals and for disposing of the rubbish at outlying points (R. 835).

(d) *Diversions.* During February, 1931, the New Haven diverted 361 cars of fruit and vegetables from the larger points on the road; 233 of these, or 64 per cent, were citrus fruit. Where the sale of fruits and vegetables has been held up due to a surplus in the market and diversion orders are given, the carrier is strictly held to making prompt movement to get the cars to the central yard and to forwarding them to the changed destination (R. 835, 836).

(e) *Accounting, Claim and Inspection Work.* As a terminal railroad the New Haven does the accounting and bookkeeping work for the originating and intermediate carriers on all loss and damage and overcharge claims and collections. It is the clearing house for claims due to failure to make the market and it thereby incurs expense which is not passed back to other carriers. In addition, it has special forces of perishable inspectors to watch and check the condition of the fruits and vegetables on arrival and before disposal (R. 836).

(f) *Reduced Train Tonnage to Meet Speed Requirements.* With regard to testimony presented as to reductions made in tonnage of perishable trains to maintain fast schedules and effect prompt deliveries, an analysis of February, 1931, shows that fast freight trains over the Shore Line route handled but 75.2 per cent of the tonnage handled by the slow freight trains over this same territory (R. 836).

Fast schedules comparable to those of the Southern lines are maintained in spite of observance of slow orders for 10 drawbridges, slow speed over the Hell Gate route and through congested areas, and a heavy passenger train interference (R. 836).

(g) *Elaborate and Expensive Terminal Facilities Are Provided to Meet the Requirements of Citrus Fruit and Other Perishable Traffic.* At Boston, Mass., the New Haven has provided a perishable terminal market which represents an investment of approximately $1,200,000 not including the tracks or the land under the tracks required to serve the terminal (R. 837).

The handling of the perishable traffic requires a greater amount of effort than that of any other traffic received in the yard, because of the requirement that they must be placed at the various parts of the market terminal prior to opening at 5 a.m. Cars that are not placed are subject to refusal by consignees and subsequent filing of claim for loss of market. Telephone advices are forwarded from the gateway to Boston of car numbers, initials, consignee, and contents, and the same information is also given from New Haven on trains destined to Boston and other eastern points, and the consignees have all information available as to various commodities enroute and the New Haven assumes the expense for doing this work. On arrival of trains at Boston, yard crews classify the cars according to the points ordered. This work is performed during limited hours in a yard that has very definite restrictions and if this fruit and perishable traffic could be handled in the same manner as slow freight traffic, five yard switching crews per day could be saved at this point alone (R. 838).

The details of the terminal situation at Providence, R. I., and New Haven, Conn., are set forth at pages 839 and 840 of the record.

The New Haven, as a terminal railroad, incurs additional expense in holding cars awaiting orders for placement. This situation was described by Witness Fairfield as follows (R. 841):

> "In considering the effort of the railroads to produce this highly specialized and expedited movement of citrus fruit it is interesting to show one item of expense thrown on to the terminal railroads by the consignees. In Boston during the month of February, 1931, consignees released only 20 per cent of the citrus fruit on the same day car was placed, 29 per cent on the second day and 42 per cent was held three days or more. In May, 1930, 37 per cent of the citrus was released on the first day, 27 per cent on the second day and 36 was held three days or more. This condition means that the railroad bears additional expense in switching the cars, in the first place to place on hold tracks and then place for delivery and also to switch cars for icing. It also means that we have to furnish additional space to hold the cars until required. It is not infrequent to have cars of citrus fruit held three days or longer and then receive orders to place at a certain designated location or to divert it to some other point."

5. Chicago & Eastern Illinois Railroad.

Witness Bell testified that tonnages of trains carrying citrus fruit and other perishables were reduced to make higher speed and to accomplish scheduled arrival at the Chicago market (R. 1375).

6. Erie Railroad.

Witness Barbour also testified that the handling of citrus fruit and other perishable traffic is more expensive than that of the general run of traffic on ac-

count of the greater service en route, faster schedules, and the reduction in train tonnages (R. 1317). The empty movement of refrigerator cars on the Erie during the 6-year period 1928 to 1933, inclusive, was 46.19 per cent of the total loaded and empty mileage (R. 1318). Taking the loaded movement of refrigerators as the base, the empty movement was within 3.81 per cent of being as great as the loaded movement. Refrigerator cars are not adapted to general loading, and their return must be expedited during the loading season (R. 1318).

7. Chesapeake & Ohio Railway.

Witness Teal testified that the empty movement of refrigerator cars on the Chesapeake & Ohio amounted to 77 per cent of the loaded movement of such equipment on its lines (R. 1377). He further stated that train schedules were designed to meet market requirements which resulted in trains being operated regardless of their being a sufficient amount of traffic to build the trains up to the normal or rated train loads, and that the perishable traffic occasionally requires the operation of special trains with cars that miss connections in order to insure delivery on the market so as to avoid claims (R. 1378). He also stated that the scheduled perishable trains cannot be filled out with other freight even to the limited extent permissible unless such other freight is available at the time the perishable trains are due to leave and in addition is destined to points which will not require additional stops (R. 1379). The wage cost is considerably greater per car, and very much greater per ton, in the case of citrus fruit than is the case with coal traffic because of moving in trains of fewer cars and at much greater speeds (R. 1380, 1381).

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8. New York Central Lines (C. C. C. & St. L. Ry.):

Witness Coverston testified that because of market conditions, the perishable nature of the freight, and competitive requirements, citrus fruit is handled with greater dispatch than dead freight generally. Other freight very frequently may be held back for later departure in order to be subjected to a minimum of operating interference from other train movements. Coal, for example, is not handled with the expedition given citrus fruit. In the movement of citrus fruit north of the gateways only a few cars are handled on any one day by most of the lines, but in order to meet market conditions the Northern lines move this traffic in expedited service in lighter trains than handle the average run of traffic (R. 1278-79).

The heavy movement of citrus fruit by Official lines occurs during the season when winter weather conditions are encountered and the cost of conducting both road and terminal operations are at the highest point, as winter weather conditions materially increase operating costs. This is not equally true of the Southern lines as winter weather does not impose upon them nearly so great burdens in the way of difficut operation as upon the Northern carriers (R. 1280).

Summary of Testimony by Operating Officials Showing That the Principal Portions of Their Respective System Lines Necessarily Used by Appellants in the Transportation of Citrus Fruit Are Relatively More Expensive to Operate Than Their Respective System Lines.

1. Pennsylvania Railroad—Route from Potomac Yard to Baltimore, Philadelphia, and New York Terminals.

The record sets forth in detail the facts which conclusively establish that the expense of operation of that portion of the Pennsylvania over which citrus fruit moves from Potomac Yard to the New York terminals is relatively greater than the expense of operating the system lines as a whole. Some of the facts which contribute to the more expensive character of the operation will now be summarized.

a. Because of the physical limitations of the Long Bridge across the Potomac River, it is not possible to employ on trains operating from Potomac Yard to New York terminals the heavier types of locomotives and cars in general use on the Pennsylvania system (R. 661, 1356, 1372).

b. The heavy passenger train density between Washington and the South over Long Bridge, and north of Washington to the New York terminals, is productive of interference and delay to the freight movement (R. 662-64, 1353, 1356-57).

c. While there is some four-track line between Washington and Wilmington, there is a substantial portion of double-track and three-track line in this territory which necessitates common use of tracks by freight and passenger trains with the result that

freight trains must be lightly loaded in order to make the speed necessary to avoid interference with passenger movement. Similarly on the New York Division, which is a four-track railroad with additional tracks in some portions, there is a substantial use of freight tracks by through passenger trains to avoid interference with local passenger trains which tends to delay the freight movement, and requires the latter to move lightly loaded at high speeds over portions of the road to avoid interference with the passenger movement (Knight Ex. No. K-5; R. 664-72, 680-81, 1356-60).

d. Substantial grades are encountered in the territory between Washington and Baltimore and also between Baltimore and Wilmington. As a result about 65 per cent of the trains carrying perishables out of Potomac Yard are provided with two engines, and helper service over the more severe grades is frequently provided (R. 661, 1352, 1356, 1538). It takes two locomotives to haul from Potomac Yard to Baltimore what one locomotive of the same type can haul from Philadelphia to Altoona (R. 1358-60).

e. A check of the through freight trains operated north from Potomac Yard over the Pennsylvania during the weeks of February 12 to 18, March 25 to 31, and April 21 to 27, 1933, disclosed percentages of actual train loads to engine capacity of 82.1 per cent over the sector from Potomac Yard to Baltimore, 59.2 per cent over the sector from Baltimore to Edge Moor Yard (Wilmington), and only 56.5 per cent realization of the potential locomotive capacity from Edge Moor to eastern destinations beyond, or an average over the entire line of only 67.7 per cent of potential capacity (Clark Ex. No. C-2). This situa-

tion discloses a lack of opportunity to curtail expenses by the loading of trains to the potential capacities of the engines and is indicative of the costly character of the operation (R. 663, 682, 1352, 1356-57, 1396, 1397).

f. Drawbridge interference occurs at the bridges crossing the Potomac River, Anacostia Inlet, and the Passaic and Hackensack rivers (R. 663, 682, 1356-57).

g. Virginia Avenue freight tunnel in Washington, and the Baltimore & Potomac and Union tunnels at Baltimore are subject to absolute block restriction and therefore entail delay to the movement of freight trains with a consequent increase in expense. Freight trains are not permitted to occupy either of the Baltimore tunnels when a passenger train is in the tunnel even though on a different track. The tunnels themselves represent heavy investments and are especially expensive to maintain (R. 1356).

h. The line of the Pennsylvania, especially between Wilmington and New York, has a substantial proportion of tracks elevated above or depressed below street level while passing through populous areas. The freight high line through Philadelphia, for example, is a viaduct of several miles' length (R. 1357).

i. Heavy expense for grade crossing elimination has been incurred on this line of the Pennsylvania (R. 1357).

j. The Washington-New York line of the Pennsylvania passes through populous districts where the land used for rights of way and for terminals is especially valuable (R. 1357).

k. The operation of the marine service employed in floating citrus fruit and other perishables between

the Harsimus Cove Yard at Jersey City and Piers 27, 28, and 29, North River, New York, is a particularly expensive, difficult and hazardous service. During the winter period when citrus fruit is moving in greatest volume, interference to this service from weather conditions, such as ice, winds, etc., is relatively great and extra tug service is frequently necessary (R. 686-88, 1353, 1354).

2. The Pennsylvania Railroad—Potomac Yard to Harrisburg.

The route of the Pennsylvania from Potomac Yard to Harrisburg follows the Washington-New York line as far as Baltimore where it diverges to the North and passes through York, Pa., to Enola (Harrisburg), Pa. There is also a longer route which follows the New York line as far as Perryville, Md., and then proceeds up the Susquehanna River to Enola, but because of the necessity for fast movement most of the arranged freight service trains, which carry citrus fruit and other perishables, move over the shorter but more difficult route through York, which is known as the Northern Central route. This route is subject to heavy grades and curves which restrict train tonnage. This is also the passenger route between Baltimore and Harrisburg (R. 669, 670, 672). Enola is a distributing terminal for such citrus fruit for Pittsburgh and Buffalo as moves via Potomac Yard; also for citrus fruit moving to Wilkes-Barre for connections.

3. The Pennsylvania Railroad—Cincinnati to Chicago.

The route of the Pennsylvania from Cincinnati to Chicago extends in a northwesterly direction from Cincinnati through Richmond, Anderson, and

Logansport, Indiana. This is a single track railroad between Cincinnati and Logansport, a distance of 172 miles, and double track beyond. Due to grades and the necessity of expedited movement, the engines handling trains carrying perishables have a potential rating of 2,850 to 3,000 tons from Cincinnati to Richmond, although the same engines can handle coal trains of 8,500 tons over the Pennsylvania route from Cincinnati to Sandusky (R. 1367, 1370). The operation through the Chicago terminal district is one of complexity because of the number of railroad crossings at grade, the expense for maintaining interlockers is considerable, and delay results with consequent loss of time by train crews. Witness McSweeney expressed the opinion that the expense of handling citrus fruit over the Cincinnati-Chicago line was more expensive than the average expense of handling all traffic on the Pennsylvania (R. 1367-68).

4. Pennsylvania Railroad—Cincinnati to Pittsburgh via Columbus.

Witness McSweeney testified that the terminal situation in the Pittsburgh district is such as to require cars of citrus fruit and other perishables moving through Cincinnati for the Pittsburgh market to be specially classified at Columbus and placed in special blocks in the Columbus-Pittsburgh trains so as to facilitate the movement from outlying yards or junctions into the Pittsburgh Produce Terminal with a minimum of delay (R. 1365). Both Witness McSweeney (R. 1369) and Witness Ward (R. 1372), expressed the opinion that preclassification of this character represents a greater switching service than is required under ordinary conditions where some

classification is performed both at the intermediate and destination terminals.

On three different portions of the line from Columbus to Pittsburgh helper grades are encountered. There are a number of tunnels on this line and a great many curves in the territory between Dennison, Ohio, and Carnegie, Pa. In the Pittsburgh district there is also much interference on account of the number of passenger trains, both through and suburban (R. 1368).

5. Baltimore & Ohio—Potomac Yard to Baltimore and Philadelphia, Pa.

The Baltimore & Ohio trains carrying citrus fruit and other perishables north out of Potomac Yard operate over the rails of the Pennsylvania over Long Bridge across the Potomac River, through the Virginia Avenue tunnel and over the bridge across the Anacostia Inlet, and are subject to the same limitations on the type of power which may be employed over Long Bridge, and to the same delays from interference caused by passenger trains operating between Washington and the South, and by the opening of drawbridges as in the case of the Pennsylvania itself (R. 1371-73).

Interference from passenger trains is rather heavy north of Washington at the time when the perishable trains are moving which requires reduction of freight train tonnage. These trains must be moved through the tunnels at Baltimore, where electric helper engines are used. An adverse grade of 1.5 per cent is encountered through the Howard Street tunnel and the ruling grade east of Baltimore is 1.8 per cent (R. 1371).

Trains out of Potomac Yard handling perishable freight handle 800 to 900 tons less tonnage per train than is the case with trains handling slower freight (R. 780, 782, 783, 1371).

While the perishable traffic carried by the Baltimore & Ohio out of Potomac Yard amounted to a small percentage of its total receipts at that point, the requirements of that traffic in the way of expedited movement largely set the pace for the service rendered all freight received at that gateway. As a result of the physical limitations and conditions encountered on this route and the requirements of the perishable traffic, the Baltimore & Ohio was able to obtain the use of only 77.3 per cent of the potential capacity of its engines out of Potomac Yard (R. 779-80, 782, 783).

Witness Ward expressed the unqualified opinion that the handling of citrus fruit and other perishables from Potomac Yard to the destinations to which the Baltimore & Ohio handles those commodities is more expensive to it than the cost of handling all freight on the average on its lines (R. 1372).

6. Baltimore & Ohio—Cincinnati to Toledo, Ohio.

Because of the necessity of expediting the movement of citrus fruit and other perishables, the Baltimore & Ohio trains out of Cincinnati have the perishables separately classified and blocked in the train by destinations and for different railroad connections at Toledo. This, according to Witness Ward, requires greater yard engine service than would otherwise be necessary (R. 1370-72). He further expressed the opinion that the expense to the Baltimore & Ohio of handling citrus fruit and other perishables

from the Cincinnati gateway to destinations served by it is greater than the average cost to it of handling all freight on its lines (R. 1372).

7. Chesapeake & Ohio—Cincinnati to Chicago.

Witness Teal testified that the line of the Chesapeake & Ohio from Cincinnati to Chicago (its Chicago Division) is more expensive to operate than the Chesapeake & Ohio system lines as a whole. The grades on this line are more adverse, and the trains are lighter. From Cincinnati to Cheviot, there is a grade of 1.9 per cent uncompensated which, if the retarding effect of curvature is also considered, is equivalent to a grade of 2.2 per cent. West of Cheviot, the grades range up to 1.1 per cent on an uncompensated basis. Because of the heavier grades it is not practicable to operate trains of the same weight and lengths as on the lighter grades which prevail generally on the balance of the system (R. 1377-79).

The average tonnage of manifest trains on the Chicago Division during the month of August, 1934, was but 56 per cent of the tonnage of manifest trains on the Chesapeake & Ohio System. The average tonnage of slow freight trains on the Chicago Division during the same period was but 24 per cent of the system average. The average number of cars handled per train on the Chicago Division in July, 1934, was only 42 per cent of the system average (R. 1378).

8. Chicago & Eastern Illinois—Evansville to Chicago, Ill.

The Chicago & Eastern Illinois receives most of its Florida citrus traffic at Evansville, Ind., and transports it in lightly-loaded trains over its line to Chicago (I. C. C. 820-24, 1067, 1078).

North of Evansville there are two ruling grades of .94 per cent adverse to the loaded movement, and a third grade of .81 per cent between Evansville and Terre Haute. North of Terre Haute the ruling grade is .83 per cent to Danville (R. 1374-75).

Witness Bell expressed the opinion supported by unit costs that the average expense per car-mile for all traffic on the line of the Chicago & Eastern Illinois from Evansville to Chicago, on which Florida citrus fruit would chiefly move, is greater than the average expense per car-mile for all traffic on its lines (R. 1374-76).

9. Erie Railroad—Cincinnati to Buffalo.

Florida citrus fruit transported by the Erie Railroad moves chiefly through the Cincinnati gateway to Buffalo, N. Y. From Cincinnati to Dayton it is moved under trackage arrangement with the Baltimore & Ohio. Beyond Dayton the line of the Erie is single tracked to Marion, Ohio, with the exception of a short portion of double track, and is subject to a ruling grade of .86 of one per cent. The line from Marion to Kent, Ohio, is double tracked with a rather dense traffic for a distance of 113 miles, on which there are many bad grades ranging from .85 per cent to 1.07 per cent. These grade conditions greatly restrict the tonnage that can be handled by the largest locomotives. From Kent to Meadville, Pa., a distance of 89 miles, the line is single tracked, except for 27 miles of double track. The adverse ruling grade on this line is 1.13 per cent, which is located in the single track territory. The grades on this line range from .75 to 1.13 per

cent. From Meadville to Buffalo, a distance of 142 miles, the line is double tracked for 83 miles, the balance is single tracked. The ruling grade for eastward trains is 1.25 per cent, making the use of two helper engines necessary. The train tonnage on the line between Marion and Meadville is much less than that on other main line divisions where the same kind of locomotives are used, and is about one-half the tonnage that is handled west of Marion on the line to Chicago with a smaller type of engine. As a result, expenses in the territory between Dayton and Buffalo are greater than on other parts of the railroad and greater than the system average expense (R. 1315-17).

10. New Haven Railroad—Jersey City to Boston.

The New York, New Haven & Hartford, herein termed the "New Haven," is the most important New England carrier of Florida citrus fruit. About 80 per cent of its receipts of this traffic come to it through the New York Harbor gateway (R. 830).

There is no all-rail connection for the interchange of freight cars between the New Haven and the railroads terminating on the Jersey shore opposite New York City. The cars are brought to the New Jersey railheads on upper New York Bay and the Hudson River and are transferred by means of car-floats and tugs. From the Greenville (Jersey City), N. J., terminal of the Pennsylvania Railroad the cars are moved on floats across the upper bay to Bay Ridge (Brooklyn), N. Y., a distance of 3.5 miles; thence via rail over the tracks of the Long Island and the New York Connecting Railroad (Hell Gate Bridge Route) to the Oak Point yard of the New Haven's Harlem

River terminal, a rail haul of 20 miles. New Haven crews and locomotives move the cars between Bay Ridge and Oak Point. The Hell Gate Bridge Route was constructed jointly by the New Haven and Pennsylvania in 1918 at a cost of approximately $30,000,000. From the New Jersey terminals of the Central Railroad of New Jersey (where Baltimore & Ohio traffic for the New Haven is received), the cars are moved on floats across the harbor and then up the East River to the New Haven float bridges at its Oak Point yard, a distance of 11.5 miles (R. 830-31).

The New Haven performs the floating service and operates a fleet of 16 tugs and 70 car floats in its interchange and pier float operations. The tugs are of 1,000 to 1,200 horsepower and the steel floats, having a capacity of 20 to 22 cars each, are approximately 300 feet long. The floats are moored into electric float bridges, having aprons and platforms adjusted to meet the varying tide conditions, and the cars are then switched over the float bridges in several cuts. There are three tracks on each float, the outside tracks holding on an average seven cars each and the center track six cars. The loading of floats is difficult and slow because there is the hazard of knocking the float off the keys, because of the number of cuts of cars to be made, and further because of the exactness with which each cut of cars must be pushed flush against the bumping posts on the float without heavy impact. The float yard switching crews are well drilled but because of the complexities of the operation accidents occur more frequently in this type of switching than on land (R. 831-32). The opera-

tion of the car floats in making the interchange was described by the witness as follows (R. 832):

"The unloading and loading of floats averages about one and one-half hours per float. Floats are moved in pairs, lashed to the tug in the center. The time consumed on the water between Oak Point and the Jersey boat bridges varies from one to two hours, depending upon tide conditions. The time between Greenville and Bay Ridge averages about 40 minutes. Our tugs and floats are manned by a captain, engineer, oiler, fireman, first deckhand, second deckhand and two floatmen, the wages per hour being 40 per cent more than that of a five man switching crew. The floating operations necessitate an entirely separate organization. In addition to the tug and float crews named, we have float bridgemen, bridgemasters, chock and chainmen, float and tug repairmen and mechanics, marine clerks, supervisors, etc. Fogs, storms, ice and heavy winds at times have a serious effect on our interchange operations.

"In one round trip of floating service we have a marine crew of seven men one and one-half hours on the water in each direction and tied up idle at each terminal one and one-half hours, while the yard switching crew unloads and loads the floats, or a total of approximately six hours in the cycle, and, in addition, a five man yard crew loading and unloading floats for one hour at each float yard terminal or a total of six hours of a seven man crew and two hours of a five man crew, and these crews and equipment have moved 40 cars each way, a distance of 12 miles. If the movement were citrus, there would be 40 loads one way and 40 empty the other."

(a) *The Character of the Interchange Produces Difficult Operating Conditions at the New Haven's Oak Point Yard.* In contrasting a rail interchange and a float interchange it is also necessary to consider the complexities of the land switching in Oak Point Yard itself. Oak Point is hemmed in by the water and the industrial and residential district of the Bronx. It is a combined floating and rail interchange yard. The tracks for classifying and making up of trains in front of the float bridges have a capacity of but 20 cars each, which necessitates rehandling of cars and doubling of cars over on two or more tracks in making up outward trains and in breaking up inbound trains. The desirable modern interchange yard is built with separate receiving tracks of 100 or more car capacity each, separate hump yards for eastward and westward classifications, adequate classification tracks and separate forwarding yards with tracks of 100 or more capacity. There is no room to make such a yard at Oak Point and in order to meet the present day demands for expedited service it is necessary to spend more switching effort in producing transportation in this yard than roads that do not have this geographical handicap (R. 832-33).

(b) *Passenger Train Interference.* The freight movement eastward from Oak Point joins the passenger route from Grand Central station at New Rochelle, 10 miles from Oak Point. The New Haven carried 16,900,000 passengers in and out of Grand Central Terminal in the year 1930. There

are 196 regular passenger trains moving daily through the interlocking towers at New Rochelle and over the same tracks handling the freight service. New Rochelle is a crossing at grade. This total movement of 196 passenger trains and an average of 48 freight trains daily means that there is a movement of either a passenger train or a freight train over this route on the average of every six minutes. This count of movements is understated in that work trains, light engines, special trains, and sections of passenger trains are not included (R. 833).

During the heavy inbound commuting hours from 7:00 to 9:00 A.M. passenger trains, excluding light engines and deadhead movements, pass at the rate of one every 3.4 minutes, and from 5:00 to 7:00 P.M. outbound passenger trains are spaced at average intervals of one every 3.2 minutes (R. 833).

The Harlem River Route, partieularly from New Rochelle, N. Y., to New Haven, Conn., sixty miles, is one of the heaviest traveled passenger lines in the United States. The movement of passenger trains is so intensive during the morning and evening hours that freight trains are held back in the terminals until the peak periods are over. Oak Point yard must hold up such cars as have been classified and made ready for eastbound movement until these two peak passenger periods are over (R. 833).

The heavy density passenger service on the Shore Line Route has a very definite influence on the freight train schedules. The New Haven operates 38 through passenger trains between New York and Boston, 26 of which run over the Shore Line Route. The scheduled running time of its through passenger

trains from New Haven, Conn., to Midway, Conn., is one hour, 13 minutes. Practically all freight trains are therefore required to enter a siding at some point in this 52-mile stretch of track to clear the faster through passenger trains and frequently the freight trains take siding at two different points for different following passenger trains. The delay to freight trains clearing for passenger trains in the month of October amounted to 182 freight train hours (R. 836).

(c) *The Boston Terminal of the New Haven is Unusually Expensive to Operate.* The Boston terminal of the New Haven is made up of 12 separate yards, not including the outlying yards. Due to physical limitations such as the waterfront, city streets and built-up districts, the construction of economically-operated receiving, classification, and forwarding yards has been prevented. The longest track in the yard holds only 38 cars. The physical characteristics of the yard and the lack of space to provide hump yard facilities results in numerous re-handlings of the same cars in flat switching from one yard to another (R. 837, 838).

Measured by cars handled per switch engine hour, Boston has the least productive results of any yard on the New Haven.

APPENDIX D

Summary of Testimony of Operating and Transportation Officials as to the Propriety of Using the Total Car Mile Expense Unit for All Traffic to Estimate the Cost of Handling Citrus Fruit.

F. J. Fell, Vice President and Comptroller, Pennsylvania Railroad, 38 years railroad experience (R. 1267):

> "Expressing my opinion, the car mile basis is a more nearly correct basis than the gross ton mile basis for the reason that the citrus is very light loading and in switching service a car, regardless of its loading, requires the same service. Citrus moves generally in expedited service." (R. 1268.)

W. A. Aiken, Jr., Superintendent of Transportation, R. F. & P. Railroad, 35 years operating experience (R. 1337):

> "I am familiar with the fact that the witness Hodkinson in this case has made certain exper : studies based upon a system average car mile unit. In my opinion I should say that is a reasonable and fair basis to be used for citrus traffic, that is in determining the fair approximation. My reason for that conclusion is that, as far as my responsibility is concerned, a car is a car. If I have got a car to move, if you put it on a car basis, all of my yard costs are based on the car unit and the same is true at the other end of the terminal. We simply have so many cars to move and I think I get a more accurate showing of what it costs me to handle when it is stated on the car basis than any other basis that the accountants may use. In my opinion I should not think that a gross ton mile basis adequately

states the expense of handling citrus fruit on our line. It would not give us the credit that the car mile basis gives. We would know more accurately what we did with the car than we would with the fluctuation of the tonnage. Without having made a study of it, it would appear to me that the gross ton mile basis would substantially understate the expense of handling citrus fruit on our line" (R. 1340).

N. S. Menaugh, Superintendent of Transportation, Eastern Region, Pennsylvania Railroad, 40 years railroad operating experience (R. 1343):

"The use of the car mile unit in attempting to approximate the expense to the Pennsylvania which may be said to be less than the real expense of handling citrus and other perishables as handled by that company, I think is a fair measuring stick to use. It is my opinion that it is the only unit which gives a proper value for the handling of an empty car. The gross ton mile unit for commodities loading less than the capacity car loads, that is in weight, are not as satisfactory and indicative, in my opinion, of expenses as the car mile. Train loads are often stated in number of cars instead of tons. Service freight trains for perishable fruit generally have to be operated without regard to tonnage, owing to market requirements and the volume of the business. Therefore you only have a car mile unit to fairly state the expense. Car mile units do not, in my opinion, pyramid terminal expenses when the average load hauls are about the same. Generally I would say that the average cost for handling an empty car is as great as the average cost of handling a loaded car" (R. 1358).

Thomas J. Ward, Supervisor of Terminals, Baltimore & Ohio Railroad (R. 1370):

"I am not an accountant, but I do considerable figuring on costs and I consult with the Comptroller in doing it, and my instructions from the Comptroller's office are, in figuring light commodities under twenty tons, in order to get the lowest approximate cost, to use the car mile basis. In so far as I can understand it, that is the best method of estimating expense that I can get. In my opinion it is certainly not unfair to do it, considering the fact that citrus fruit is more expensive to handle" (R. 1372).

J. E. Teal, Transportation Engineer, Chesapeake & Ohio Railway Co. (R. 1376):

"The best practical way in which to estimate the expense of handling citrus fruit is the average unit cost per car mile as applied to miles of citrus fruit hauled. My reasons for that are that in allocating or estimating expenses, the object is to select a unit of expense that will, if possible, most nearly reflect the use of property by the particular traffic under consideration, and also the contribution that such commodity should make the net revenues on account of its special character, or value, or the character of service required in connection with its handling. In my opinion, the system average car mile expense unit when applied to this particular traffic, citrus fruit, which loads to an average of less than 17 tons per loaded car, will most nearly meet these requirements.

"1. The average per car mile expense unit is the only single expense unit that will most nearly give proper weight to the expense applicable to traffic having an average car load sub-

stantially less than the average car load of all traffic, and also to the expense of handling empty cars.

"2. Any other recognized expense unit, such as the average net or gross ton mile expense unit, when applied to citrus fruit traffic will understate the cost of such traffic because these units would be weighted down by the cost per ton mile of handling heavy loaded traffic such as coal and ore which is admitted to be less than the cost per ton mile on citrus fruit" (R. 1380).

Taking expenses for fuel and water, Witness Teal demonstrated that it requires twice the amount of energy to produce a ton-mile of citrus fruit (40 tons gross per car) at double the speed of coal traffic as it does to produce a ton-mile of coal (80 tons gross per car). This is because of the greatly increased train resistance per ton of lightly loaded cars as compared with heavily loaded cars. It requires approximately the same, or a greater amount of, energy to move a carload of lightly loaded traffic at high speed as a car of heavily loaded traffic at slow speed (R. 1381-82).

Witness Teal also made reference to numerous transportation expenses which should be distributed on a car basis rather than upon a tonnage basis. Among these expenses were those charged to the accounts of superintendence and dispatching trains, station employees, signals and interlockers, clearing wrecks, loss and damage, and injuries to persons. Transportation expenses of this class amounted to 27 per cent of all *transportation* expenses on the Chesapeake & Ohio (R. 1382).

The same witness, in dealing with the maintenance of way group of expenses, testified as follows with

respect to the merits of the car-mile unit as compared with the ton-mile unit for estimating costs of handling citrus fruit (R. 1382-83):

> "Of this group of expenses it is generally conceded that approximately one-third of the total of such expenses varies directly with the weight of the traffic that moves. This being the case, the question then is what is the effect of the light loaded car moving at high speed as compared with heavier loaded cars moving at slower or average speeds? In this case the laws of motion are again definitely effective. The light loaded car moving at the higher speeds will undoubtedly do as much damage to the track structure as the heavily loaded car moving at slower speeds. I can demonstrate this by measurements that have been made by the C. & O. maintenance of way engineers.
>
> "With reference to the remaining portion of maintenance of way expenses, aggregating we will say 67 per cent. of the total which are not directly affected by use or weight of traffic, it is fair to say that the most logical unit for distributing such expenses is to select one that will more nearly level out the value of the commodity that is handled in the cars. The car mile unit will effect this to a greater extent than the ton unit" (R. 1382).

Mr. Teal also analyzed the group of maintenance of equipment expenses and explained in the following language as to why the car-mile unit is more appropriate than the ton-mile unit in apportioning these expenses for the purpose of approximating the cost of handling citrus fruit (R. 1383):

"Locomotives and cars operated at the higher speeds are the cause of greater wear and tear to the machinery and moving parts than when the same equipment is moved at slower speeds. This is caused on account of the greater shocks, etc., that are incurred at the higher speeds. Also, in connection with the locomotive, it cannot handle as many cars at higher speed as it can at lower speeds. For this reason alone the cost of locomotive repairs per car mile moving at higher speeds handling light loaded traffic will be greater than the cost of locomotive repairs per car mile moving at slower speeds with heavier loaded cars."

APPENDIX E

Comparison of Results

Hodkinson's Car-Mile Basis All Accounts; Clark's Car-Mile Basis Selected Accounts; Hodkinson's Gross Ton-Mile Basis All Accounts; Kennedy's No. 1 Revised Exhibit Gross Ton-Mile Basis Selected Accounts.

Road	Total Freight Car Miles (Citrus)	Investment Unit on System Basis (cents)	Amount Required to Produce 5¾% Return	Net Income	Per Cent of Return
Hodkinson's Car-Mile Basis All Accounts					
P. R. R.....	6,066,282	3.02812	$183,694	$ 65,578 *	....
B. & O.....	577,480	3.00827	17,372	13,368	4.42
R. F. & P.....	3,544,582	2.11642	75,018	1,259 *	....
A. C. L.....	15,303,592	2.62114	401,129	1,082,894	15.43
S. A. L.....	10,274,539	3.66300	376,356	684,184	10.45
Clark's Car-Mile Basis Selected Accounts					
P. R. R.....	6,066,282	3.02812	183,694	51,971	1.63
B. & O.....	577,480	3.00827	17,372	17,820	5.90
R. F. & P....	3,544,582	2.11642	75,018	81,929	6.28
A. C. L.....	15,303,592	2.62114	401,129	1,274,090	18.26
S. A. L.....	10,274,539	3.66300	376,356	831,634	12.71
Hodkinson's Gross Ton-Mile Bas[illegible] All Accounts					
	Gross Ton Miles				
P. R. R.....	214,276,236	0.07183	153,914	51,073	1.91
B. & O.....	20,515,344	0.07320	15,017	24,958	9.56
R. F. & P.....	125,323,223	0.06188	77,550	15,967 *	.....
A. C. L.....	538,705,187	0.07853	425,505	999,883	13.51
S. A. L.....	362,385,182	0.10218	370,842	698,904	10.84
Kennedy's No. 1 Revised Exhibit Gross Ton-Mile Basis—Selected Accounts					
P. R. R.....	214,276,236	0.07836	167,907	95,219	3.26
B. & O.....	20,515,344	0.07856	16,117	21,380	7.63
R. F. & P.....	125,323,223	0.06319	79,192	66,239	4.81
A. C. L.....	538,705,187	0.09707	522,921	885,658	9.74
S. A. L.....	362,385,182	0.11779	426,854	714,497	9.62

* Deficiency.